



## APPENDIX

1. In a cellular mobile radio communications system including at least one mobile station and at least two base stations, a method of communicating with said mobile station from a first and a second of said base stations comprising the steps of:

transmitting a signal on a first frequency from said first base station to said mobile station using a waveform encoded with a first code;

sending a transfer indication from said first base station to said second base station which commands the second base station to begin communicating with said mobile station;

after receiving said transfer indication, transmitting a signal on said first frequency from said second base station to said mobile station using a waveform encoded with a second code which is different from said first code; and

receiving at said mobile station said signals transmitted on said first frequency from said first and second base stations and decoding said signals using said first and second codes to produce a first and a second demodulated signal.

2. In a cellular mobile radio communications system including at least one mobile station and at least two base stations, a method of communicating with said mobile station from a first and a second of said base stations comprising the steps of:

transmitting a control signal on a first frequency from said first base station to said mobile station using a waveform encoded with a first scrambling code to inform said mobile station of a second frequency and a second scrambling code, different from said first scrambling code, which relate to said second base station;

sending a transfer indication which commands the second base station to begin communicating with said mobile station from said first base station to said second base station;

after receiving said transfer indication, transmitting a signal on the second frequency from said second base station to said mobile station using a waveform encoded with the second scrambling code; and

after receipt by said mobile of said control signal, receiving said signal on said second frequency and decoding said signal with said second scrambling code to produce a demodulated signal.

3. A method according to claim 1, wherein said first code includes a first base station code for identifying said first base station combined with a first access code and said second code includes a second base station code for identifying said second base station combined with a second access code.

4. The method according to claim 1, further including the step of:  
error correcting said demodulated signals.

5. The method according to claim 4, wherein said error correcting step comprises selecting symbols from said first and second demodulated signals.

6. The method according to claim 4, wherein said error correcting step comprises combining symbols from said first and second demodulated signals.

7. In a cellular mobile radio communications system including at least one mobile station and at least two base stations, a method of transferring communication with said mobile station from a first to a second of said base stations comprising the steps of:  
decoding, at said mobile station, signals received simultaneously from said at least two base stations on a common frequency, each signal encoded with a different scrambling code and modulated with the same data related to said communication, and quantifying their respective signal strengths;  
transmitting a signal from said mobile station indicating said respective signal strengths;  
receiving at one of said at least two base stations said signal indicative of signal strengths and sending said signal indicative of signal strengths to a network controller; and  
processing said indicated signal strengths in said network controller and selecting one of said at least two base stations to maintain communication with said mobile station.

8. A method according to claim 7, wherein said network controller commands said selected base station to initiate a transmission to said mobile station using an available access code.

9. A method according to claim 7, wherein said access code is composed of a base station code for identifying said base station combined with a traffic channel code.

10. In a cellular mobile radio communications system including at least one mobile station and at least two base stations, a method of communicating with said mobile station from a first and a second of said base stations comprising the steps of:

transmitting a first traffic signal on a first frequency from said first base station to said mobile station using a waveform encoded with a first code;

transmitting a control message which includes information relating to a third code on said first frequency from said first base station to said mobile station using a waveform encoded with a second code which is different from said first code;

sending a transfer indication which commands said second base station to begin communicating with said mobile station from said first base station to said second base station;

after receiving said indication, transmitting a second traffic signal on said first frequency from said second base station to said mobile station using a waveform encoded with said third code; and

receiving at said mobile station said signals transmitted on said first frequency from said first and second base stations and decoding these signals using said first, second and third codes to obtain a first demodulated traffic signal, a decoded control message and a second demodulated traffic signal, respectively.

11. A method according to claim 10, wherein said first code includes a combination of a first base station code for identifying said first base station with a first traffic channel access code and said second code includes combination of said first base station code with a control channel code.

12. A method according to claim 11 in which said third code includes a combination of a second base station code for identifying said second base station with a second traffic channel code.

13. A method according to claim 11 in which said third code includes combination of a second base station code for identifying said second base station and a control channel code.

14. A cellular mobile radio telephone system comprising:  
first and second base stations; and  
a remote unit including:  
signal processing means for producing an analog signal  
representative of signals received from said first and second base station on the same  
frequency;  
analog to digital conversion means for converting said analog signal  
to a sequence of numerical values;  
CDMA processing means for processing and decoding said  
numerical values using a first and second code to obtain a demodulated data received  
from each of said first and second base stations to generate first and second demodulated  
data signals, respectively, said first and second demodulated data signals including  
information relating to signal quality of said received signals;  
encoding means for encoding said information into a data message;  
and  
CDMA transmitting means for transmitting said data message to at  
least one of said first and second base stations.

15. A mobile station according to claim 14, wherein said first code includes combination of a first base station code for identifying said first base station with a first access code and said second code includes combination of a second base station code for identifying said second base station with a second access code.

16. The method of claim 2, wherein the first and second scrambling codes have different numeric values.

17. The method of claim 7, wherein the scrambling codes have different numeric values.

18. In a radio communication system including at least one mobile station and at least two base stations, a method of communication with the mobile station from a first and a second of said base stations comprising the steps of:

transmitting a first signal from said first base station to said mobile station using a waveform encoded with a first code to inform said mobile station of a second code, different from said first code, which relates to said second base station;

receiving at the mobile station a composite signal including said first signal from said first base station and a second signal from said second base station;

demodulating, in an order of strongest to weakest signal strength, the first and second signals from the first and second base stations;

sending a transfer indication from said first base station to said second base station which transfer indication commands the second base station to begin communicating with said mobile station;

after receiving said transfer indication, transmitting a third signal from said second base station to said mobile station using a waveform encoded with the second code; and

after receipt by said mobile station of said first signal, receiving said third signal and decoding said third signal with said second code to produce a demodulated signal.

19. The method of claim 18, further comprising the step of subtracting the demodulated first signal from the composite signal.

20. The method of claim 18, wherein the second base station gradually increases a power level of the third signal to a desired power level.

21. The method of claim 18, further comprising the step of gradually decreasing a power level of the first signal after the mobile station receives the third signal.

22. The method of claim 18, further comprising the step of simultaneously transmitting signals from the mobile station to the first and second base stations, wherein the mobile station gradually increases a power level of signals transmitted to the second base station and gradually decreases a power level of signals transmitted to the first base station.

23. In a radio communication system having at least a first and a second base station and at least one mobile station, a method of directing signals between a first user of said system and a second user of said mobile station comprising the steps of:

receiving, at said mobile station, a composite signal comprised of signals transmitted from said first and second base stations;

demodulating, at said mobile station, signals of said first user transmitted by said first base station;

subtracting said demodulated signal from said composite signal to form a residue signal; and

processing said residue signal in said mobile station to determine a strength of a signal transmitted by said second base station to form a sequence of signal strength measurements.

24. The method of claim 23, wherein said signal transmitted by said second base station is a pilot signal.

25. The method of claim 24, wherein said pilot signal is encoded with broadcast information including an identification code of said second base station.

26. The method of claim 25, wherein said pilot signal is further encoded with a data message addressed to the mobile station.

27. The method of claim 26, wherein said data message is a control message.

28. The method of claim 26, wherein said data message is a calling message.

29. The method of claim 26, wherein said data message is a handover command.

30. The method of claim 23 further comprising the steps of:  
encoding said signal strength measurements; and  
transmitting said encoded signal strength measurements from said mobile station to at least one of said base stations.

31. The method of claim 30 further comprising the steps of:  
receiving said encoded signal strength measurements at said base station; and  
determining in a fixed part of said radio communication system which of said base stations will communicate traffic signals between said first user and said second user.

32. The method of claim 30 further comprising the steps of:  
receiving said encoded signal strength measurements at said at least one of said base stations; and  
formulating a handover command based on the received encoded signal strength measurements for transmission to said mobile station.

33. The method of claim 32 further comprising the step of receiving said handover command at said mobile station.

34. The method of claim 33, wherein said handover command includes an identification code of the base station which will communicate traffic signals between said first user and said second user.

35. The method of claim 34, wherein said handover command identifies at least one other base station on which said signal strength measurements are to be performed.

36. In a radio communication system having at least a first and a second base station and at least one mobile station, a method of directing signals between a first user of said radio communication system and a second user of said mobile station comprising the steps of:

receiving at said mobile station a composite signal comprised of pilot signals and traffic signals transmitted from said base stations;

demodulating at said mobile station said pilot signals and said traffic signals transmitted by said base stations in an order of strongest to weakest signal strength based on a historical signal strength;

forming signal strength measurements from said demodulated pilot signals which indicate a relative signal strength of said signals transmitted from said base stations; and

encoding said signal strength measurements and transmitting said signal strength measurements from said mobile station to at least one of said base stations.

37. The method of claim 36, wherein said pilot signals are encoded with broadcast information including an identification code of the base station from which said pilot signals are transmitted.

38. The method of claim 37, wherein said pilot signals are further encoded with data messages addressed to mobile stations that are registered in a service area of each base station.

39. The method of claim 38, wherein said data messages are control messages.



40. The method of claim 38, wherein said data messages are calling messages.

41. The method of claim 38, wherein said data messages are handover commands.

42. The method of claim 36 further comprising the steps of:  
receiving said encoded signal strength measurements at said at least one base station; and  
determining in said radio communication system, based on said encoded signal strength measurements, which of said base stations will communicate traffic signals between said first user and said second user.

43. The method of claim 36 further comprising the steps of:  
receiving said encoded signal strength measurements at said at least one base station; and  
formulating a handover command for transmission to said mobile station based on said received encoded signal strength measurements.

44. The method of claim 43 further comprising the step of receiving said handover command at said mobile station.

45. The method of claim 44, wherein said handover command includes an identification code of the base station which will communicate traffic signals between said first user and said second user.

46. The method of claim 45, wherein said handover command identifies at least one other base station on which said signal strength measurements shall be performed.

47. The method of claim 36, wherein each demodulated signal is subtracted from said composite signal or previous residual signal to form a new residual signal before the next signal is demodulated from said new residual signal.

48. The method of claim 36, wherein the pilot signal transmitted by each base station is stronger than the traffic signals transmitted by the same base station.